

WHAT IS CLAIMED IS:

- Sub A35*
1. An optical head device comprising:
 - a light source for emitting a light beam having a predetermined wavelength;
 - 5 a laser driving circuit member for driving the light source for allowing the light source to emit the light beam;
 - 10 a monitor light detecting part for detecting the light amount of the light beam emitted from the light source;
 - 15 an objective lens for collecting the light beam on a predetermined position of the optical disc;
 - 20 a light receiving element for receiving the light beam reflected from the optical disc and for converting the received light beam into an electric signal;
 - a base having an open portion and holding an optical member arranged in the open portion for guiding the light beam in a manner to form an optical path of the light beam from the light source to the objective lens;
 - 25 a holding member for holding the monitor light detecting part within the open portion of the base in parallel to the optical path and in a manner not to interfere with the light beam;
 - 30 a guide member for guiding the optical head in the radial direction of the optical disc; and
 - 35 a disk motor for rotating the optical disk by

6 9 9 2 9 2 9 2 9 2 9 2 9 2 9

predetermined speed.

2. The optical head device according to claim 1,
the holding member is a cover member attached on
the base for holding at least one of the light source,
the laser driving circuit member, and the monitor light
detecting part, the objective lens, the light receiving
element and light receiving element.

3. The optical head device according to claim 2,
wherein the base holds the cover member with a
predetermined clearance provided therebetween.

4. The optical head device according to claim 3,
wherein the base permits a part of the light source
driving part to be exposed to the outside through the
clearance formed between the cover member and the base.

5. An optical head used in an optical disc
apparatus in which an optical disc is irradiated with a
light beam for recording data in the optical disc or
for reproducing data from the optical disc, at least
one of circuit member and part element for reproducing
or recording data being housed in the optical head,
comprising:

a light source for emitting a light beam having a
predetermined wavelength;

an objective lens for collecting the light beam
for irradiating the optical disc with the light beam;

a driving mechanism for moving the objective lens
in a predetermined direction for at least one of a

O P E N T E C H N O L O G Y

10
PJP

15

20

25

- D E S C R I P T I O N
- focusing and a tracking to the optical disc;
- a light receiving element for receiving the light beam reflected from the optical disc and for converting the receiving light beam into an electric signal;
- 5 a base having an open portion and holding an optical member arranged in the open portion for guiding the light beam in a manner to form an optical path of the light beam from the light source to the objective lens;
- 10 a light source driving circuit member which comprised the light source driving circuit for driving the light source;
- 15 a signal processing circuit member which comprised the signal processing circuit for processing the electric signal from the light receiving element;
- a driving mechanism driving circuit member for driving the driving mechanism; and
- 20 a holding member for holding at least one of the been driving circuit member, the light source driving circuit member, the signal processing circuit member, and the driving mechanism driving circuit member within the open portion of the base in parallel manner to the optical path within the base and in a manner not to interfere with the optical path within the base.
- 25 6. The optical head according to claim 5, wherein the beam emitted from the light source exhibits diverging properties that the beam is gradually

diverged with increase in the distance from the light source.

Sub A 30

7. The optical head according to claim 5, wherein at least one of the driving mechanism driving circuit member has a yoke constituting a magnetic circuit, and the holding means does not project beyond the height to which the yoke projects within the open portion of the base.

8. An optical head used in an optical disc apparatus in which an optical disc is irradiated with a light beam so as to record data in the optical disc, comprising:

a light source emitting a light beam having a predetermined wavelength;

a light source driving part for driving the light source;

a monitor light detecting part for detecting the light amount of the light beam emitted from the light source;

an objective lens for collecting the light beam on a predetermined position of the optical disc;

a base having an open portion and holding an optical part within the open portion, the optical part guiding the light beam in a manner to form an optical path of the light beam from the light source to the objective lens; and

holding means for holding the monitor light

SEARCHED INDEXED
SERIALIZED FILED

detecting part within the open portion of the base in parallel to the optical path and in a manner not to interfere with the light beam.

9. The optical head according to claim 8, wherein
5 the light source driving part is held within the open portion together with the monitor light detecting part along the optical path.

Sub A31

10. An optical head used in an optical disc apparatus in which an optical disc is irradiated with a
10 light beam for reproducing data from the optical disc or for recording data in the optical disc, comprising:
an objective lens;
a light source emitting a light beam having a predetermined wavelength;
15 a light source driving part for driving the light source;
a base having an open portion and holding an objective lens and the light source within the open portion in a manner to define an optical path of a predetermined length; and
20 a cover member for holding the light source driving part in a position parallel to the optical path within the open portion so as not to interfere with the beam.

25 11. The optical head according to claim 10,
wherein the base holds the cover member with a predetermined clearance provided therebetween.

A31
Jrnlk

5 12. The optical head according to claim 11,
wherein the base permits a part of the light source
driving part to be exposed to the outside through the
clearance formed between the cover member and the base.

10 13. The optical head according to claim 11,
wherein the light source driving part is fixed to the
cover member with a flexible printed circuit member
interposed therebetween.

15 14. An optical head, comprising:

20 an objective lens for irradiating an optical disc
with a light beam and for receiving the light beam
reflected from the optical disc;

25 a first light source for emitting a first light
beam having a first wavelength;

30 a second light source for emitting a second light
beam having a second wavelength;

35 an optical path synthesizing-separating element
for allowing the first beam and the second beam to be
incident on the objective lens and for separating beams
reflected from the objective lens, the reflected beams
corresponding to the first and second light beams,
respectively;

40 first and second light detectors for detecting the
first and second reflected beams, respectively,
reflected from the optical path synthesizing-separating
element; and

45 a converging optical system arranged between the

second light source and the optical path synthesizing-separating element for diminishing the diverging angle of the diverging light flux emitted from the second light source so as to guide the light flux to the 5 optical path synthesizing-separating element.

15. The optical head according to claim 14, wherein the first light source and the first light detector are mounted to a single substrate for forming a first light receiving-emitting integral element, and 10 the second light source and the second light detector are mounted to another substrate differing from the first light receiving-emitting integral element to form a second light receiving-emitting element.

16. An optical head, comprising:
15 an objective lens for collecting a light beam on an optical disc and for receiving the light beam reflected from the optical disc;

a first light source for emitting a first light beam having a first wavelength;
20 a second light source for emitting a second light beam having a second wavelength;

a beam splitter for splitting the first and second reflected light beams from the objective lens corresponding to the first and second light beams, 25 respectively;

a light detector for detecting the first and second reflected light beams from the beam splitter;

DEBEZEE DEBEZEE

and

a converging optical system arranged between the second light source and the optical path synthesizing-separating element for diminishing the diverging angle of the diverging light flux generated from the second light source so as to guide the light flux of the diminished diverging angle to the optical path synthesizing-separating element.

17. The optical head according to claim 16,
wherein the converging optical system is formed of a convex lens having a radius of curvature on the side of the second light source larger than that of a flat plane or than a radius of curvature on the side opposite to the side of the second light source.

18. The optical head according to claim 17,
wherein the converging optical system includes a refractive index distribution type lens or a plane diffraction type lens.

19. The optical head according to claim 16,
wherein the lens forming the converging optical system is arranged in an inclined fashion from the optical axis of the light emitted from the second light source.

20. The optical head according to claim 16,
wherein the second light performs the information recording and reproduction in and from the information recording medium.

21. An optical head device, comprising:

an objective lens for converging a light beam on a predetermined position of an optical disc and for receiving the light beam reflected from the optical disc;

- 5 a first light source for emitting a first light
beam having a first wavelength;

10 a second light source for emitting a second light
beam having a second wavelength;

15 an optical path synthesizing-separating element
for permitting the first light beam and the second
light beam to be incident on the objective lens and for
splitting the first and second reflected light beams
from the objective lens corresponding to the first and
second light beams;

20 first and second light detectors for detecting the
first and second reflected light beams from the optical
path synthesizing-separating element, respectively;

25 a converging optical system arranged between the
second light source and the optical path synthesizing-
separating element for diminishing the diverging angle
of the diverging light flux emitted from the second
light source so as to guide the light flux of the
diminished diverging angle to the optical path
synthesizing-separating element; and

30 a signal processing circuit for obtaining a
tracking error signal, a focus error signal and a
reproduced signal by using the outputs from the first

ପ୍ରକାଶକ ପତ୍ର

and second light detectors.

22. An optical head used in an optical disc apparatus in which an optical disc is irradiated with a light beam so as to record data in the optical disc,
5 comprising:

an objective lens;

a light source for emitting a beam having a predetermined wavelength;

10 a monitor light detector member for detecting the light amount of the beam emitted from the light source;

a base having an open portion and holding the lens and the light source within the open portion so as to maintain a predetermined length of the optical path between the lens and the light source; and

15 a flexible printed circuit member for mounting the monitor light detector within the open portion along the optical path of the beam so as not to interfere with the beam.

23. An optical disc apparatus in which an optical disc is irradiated with a light beam by using an optical head so as to record data in the optical disc or to reproduce data from the optical disc, comprising:
20

a guide member for guiding the optical head when the optical head is moved in a radial direction of the disc;
25

a signal processing circuit member for controlling the data recording or data reproduction by using the

DEPARTMENT OF COMMERCE

optical head;

a light source for emitting a light beam having a predetermined wavelength;

5 an objective lens for collecting the light beam on the optical disc;

an actuator for changing the position of the objective lens for the tracking adjustment or for the focus adjustment of the light beam irradiating the optical disc;

10 a yoke included in the actuator for imparting a driving force for changing the position of the objective lens in cooperation with a coil;

15 a light receiving element receiving the light beam reflected from the optical disc and converting the received light beam into an electric signal;

20 a base having an open portion and holding an optical member for guiding the light beam within the open portion so as to form an optical path ranging between the light source and the objective lens; and

25 holding means for holding at least one member selected from the group of the signal processing circuit member, the actuator, and a circuit for processing the electric signal generated from the light receiving element within the open portion so as not to interfere with the optical path of the beam and in parallel to the optical path.

DRAFTSPEECH